

**AMENDMENTS TO THE CLAIMS:**

Please amend the claims as detailed herein.

1. (Currently Amended) A method of high contrast imaging of semiconductor and metallic sites in an integrated circuit (IC), ~~comprising the steps of:~~  
~~setting up a device that simultaneously produces two separate~~ exclusive high-contrast  
~~images of a sample of said IC from one light source; and~~  
~~refining said images to generate an exclusive high-contrast image of said~~  
~~semiconductor sites, the method comprising:~~

exciting said IC with a focused excitation beam from a light source;

transversely and axially scanning said IC by said focused excitation beam;

producing simultaneously a high-contrast confocal reflectance image  
 $i_r(x, y, z)$  and a low contrast one-photon optical beam-induced current image (1P-OBIC)  
 $i_s(x, y)$  of said IC;

deriving a first exclusive high-contrast image  $s(x, y, z)$  of said semiconductor  
sites of said IC from a pixel to pixel product of said 1P-OBIC image and said confocal  
reflectance image using the equation:  $s(x, y, z) = i_r(x, y, z)i_s(x, y)$  where  $s(x, y, z) > 0$ ;  
and

deriving a second exclusive high-contrast image  $m(x, y, z)$  of said metallic sites of  
said IC from a product of a complementary to said 1P-OBIC image and said confocal  
reflectance image using the equation:  $m(x, y, z) = i_r(x, y, z)i_m(x, y)$  where  $i_m(x, y) = \kappa -$   
 $i_s(x, y)$  and  $\kappa$  is a constant that represents the highest  $s(x, y, z)$  value that is possible for  
a given optical set-up.

2-3. (Canceled)

4. (Currently amended) The method of ~~claim 3~~claim 1, wherein ~~said microscope~~ said focused excitation beam is a beam-scanning confocal reflectance microscope that ~~simultaneously generates both a one-photon optical beam-induced current (1P-OBIC) image and a confocal reflectance image of the IC sample.~~

5. (Currently amended) The method of ~~claim 3~~ claim 1, wherein said light source is selected from the group consisting of a laser and a spectrally filtered light source with a broadband spectrum.

6. (Cancelled)

7. (Currently amended) The method of claim 5, wherein said device includes a scanning mirror system having two galvanometer mirrors for x and y scanning, and two lenses that constitute a 4f transfer lens, wherein said light source ~~has an output beam that is directed to said scanning mirror system via a beam splitter.~~

8. (Currently amended) The method of claim 7, wherein said device includes another pair of lenses that expand and collimate said ~~scanned output~~ excitation beam and inputs said ~~scanned output~~ excitation beam to an optical microscope assembly.

9. (Currently amended) The method of claim 8, wherein said device includes an Infinity-corrected objective lens that focuses said excitation beam into ~~an exposed top surface of said integrated circuit~~ said IC.

10. (Currently amended) The method of claim 9, wherein said device includes a pair of digital-to-analog converters to achieve precise two-dimensional scan control of said focused excitation beam.

11. (Currently amended) The method of claim 10, wherein said device provides reflected light that is collected back by said Infinity-corrected objective lens and focused

by a lens towards a pinhole that is placed in front of ~~said~~ a photodetector.

12. (Previously presented) The method of claim 11, wherein said 1P-OBIC is measured by inputting an output of said pinhole that is nearest to a probe surface area to a current-to-voltage converter composed of an operational amplifier and a feedback resistor.

13. (Currently amended) The method of claim 12, wherein said device includes another converter input that is a common reference for electronic circuits including ~~the integrated circuit sample~~ said IC.

14-15. (Canceled)